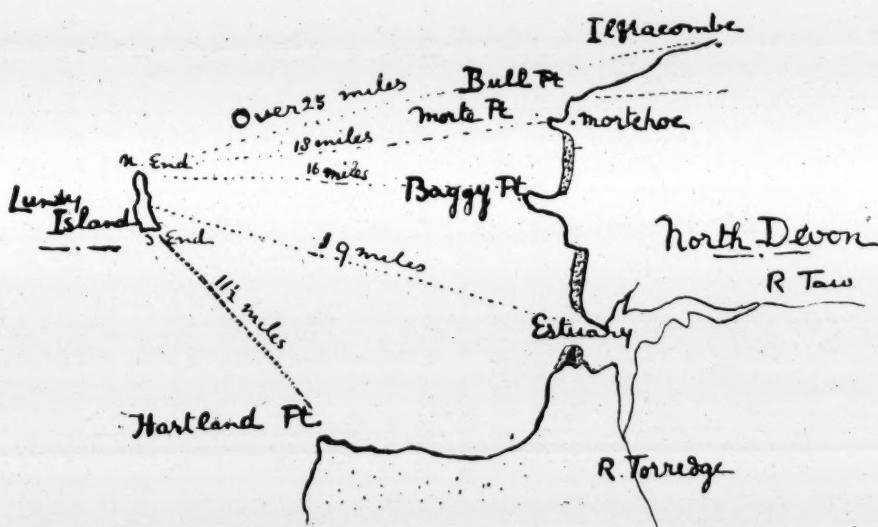


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NOTES ON THE FAUNA OF LUNDY ISLAND.

BY BRUCE F. CUMMINGS.



Sketch Map of Lundy and the North Devon Coast (showing distances).

LAST June I spent a few days on Lundy Island—from the 3rd to the 10th inclusive—and occupied myself with the Mammals, Birds, and Terrestrial Isopods. I took with me a good supply of traps for the mammals, but, although Rats were plentiful, I failed in the principal object of my visit—that of securing a series of Shrew-Mice, which are quite numerous on the island, but, in the summer, exceedingly difficult to trap.

In a paper read by Mr. T. A. Coward in December, 1907, before the Manchester Literary and Philosophical Society, on the Mammals of Lundy, it is stated that a Shrew sent to the British Museum by Dr. Norman Joy was identified as *Sorex minutus*. Mr. Coward himself was successful in obtaining only one specimen, and that also proved to be *S. minutus*. A third specimen of *S. minutus* from Lundy I obtained from one of the lighthouse keepers of the North End, who told me that Shrew-Mice are very plentiful in the autumn, and one or two are even caught by their cat in the lighthouse itself. This specimen was captured by their dog "Gyp." It is a male, measuring in head and body 43 mm., and in tail 38 mm., hind foot 10 mm. My identification has been confirmed by Mr. Coward. I failed to trap any Shrews.

The only other Lundy Shrew which has been examined was thought by its captor, Mr. A. J. R. Roberts, to be the Common Shrew (*S. araneus*), but Mr. Coward considers that, judging by its measurements, it was either *S. minutus* or a young specimen of *S. araneus*. It is probable that Lundy resembles Ireland and the Isle of Man in possessing only the Lesser Shrew, the Common Shrew and the Voles being absent.

The House Mouse (*Mus musculus*) and the Norway Rat (*M. norvegicus*) are common. I also captured an old English Black Rat, which I think belonged to the *M. ratus alexandrinus* sub-species, and which Mr. Coward suggests as representing the mysterious Red Rat of the islanders. Mr. Coward took a series of both this form and *M. ratus ratus*.

Several Goats have broken loose from captivity, and have been inhabiting the cliffs in a completely feral condition.

Rabbits are plentiful, but Mustelids, Moles, and Bats are absent, although the latter are said to occur occasionally. The Seal is by no means an uncommon animal off the coast, but only *Halichoerus grypus* has been identified for certain.*

In regard to the birds, there has taken place an unfortunate but not unexpected change since the Rev. F. L. Blathwayt's article on Lundy was published in 'The Zoologist' (cf. Zool. 1900, p. 375), for the Gannet (*Sula bassana*) has become locally extinct. The other sea-birds—Puffins, Guillemots, and Razorbills—con-

* Mr. Coward, loc. cit.

tinue to breed there year by year in their accustomed legions, the chief resort being the North End. The Gulls were nesting in prodigious quantities, especially the Herring-Gulls and Kittiwakes. The Lesser Black-backed was also common, but the fourth species of Gull, the Great Black-backed, is very rare, and will probably be locally extinct shortly. Perhaps not more than two pairs are now left, one of which nests near the Shutter Rock.

The numbers of the Cormorants and Shags appear entirely insignificant beside those of the other sea-birds, but they appear to be maintaining their hold, breeding especially on the Gannet Stone.

One's general impression of the island, ornithologically, and apart from the sea-birds, consists of Linnets, Meadow-Pipits, Stonechats, and Larks.

Mr. H. J. Ross, who last winter, in conjunction with Mr. A. H. Rousham, read a paper on Lundy birds before the Exeter R. A. M. Field Club and Nat. Hist. Society, records that he discovered about three pairs of Whinchats (*Pratincola rubetra*) on the island in the preceding June. He writes to me that he is quite satisfied with his identification, as he is well acquainted with the species, although he has never seen it in Devon before. I have never seen the Whinchat in North Devon, where, if it occurs, it must be a very rare bird, nor did I observe it on Lundy during my visit. Messrs. Matthew and D'Urban, in 'The Birds of Devon,' after remarking on the rarity of the Whinchat in North Devon, suggest that in the list of Lundy Island birds (presumably that drawn up by Mr. J. R. Chanter in his monograph on Lundy) the Whinchat was confounded with the Stonechat. But Mr. Blathwayt (*loc. cit.*) records it again, and his testimony, together with Mr. Ross's, is quite sufficient to show that the Whinchat is, in fact, a summer visitant to Lundy. Mr. Ross observed them in June, and Mr. Blathwayt in May, but no nest is reported to have been found, although it appears very probable the birds are resident. In any case, their occurrence on the island and their probable absence from the mainland is sufficiently interesting.

Within the past twelve years or so the House-Sparrow and the Starling have established themselves on the island, but the

latter is far from common—not more than two pairs, I believe, during last June.

The Jackdaw, which flocks around and freely breeds on the coast of the mainland, comes only occasionally to Lundy Island. The Carrion-Crow is resident, and nests in the cliffs with the Kestrel.

There is an eyrie of the Peregrine Falcon in which eggs are regularly laid, but from which young birds do not so regularly fly away; the cliff-climbers appreciate the value of the eggs and of the young birds.

Among other birds I also observed:—Buzzards, Wheatears (common), Blackbirds, which are in larger numbers than the Thrush, Swifts, House-Martins, Sand-Martins and Swallows, Ring-Plover, Oystercatchers (which breed on the island but nowhere else, so far as I am aware, in North Devon), Robins, Wrens, Cuckoos, Curlews, Goatsuckers, Wood-Pigeon (only one), Whitethroats (a pair with a nest), Blackcap (I only saw one bird, but it seemed to have a nest near which I was unable to find), Willow-Warbler (one singing in the garden of the owner of the island, the Rev. H. G. Heaven), Goldfinches (one pair), Rock-Pipits, and Turtle-Doves (one pair, which disappeared the day after I had seen them).

Among the birds that I did not see were Buntings, Wagtails, Tits, Bullfinches, Lapwings, and, of course, the Woodpeckers, Tree-Creepers, &c.

A bird which I did not see, but which I heard one night, was the Manx Shearwater (*Puffinus anglorum*). Although long suspected of being a resident species, it was only actually discovered nesting a few years ago by Mr. A. J. R. Roberts, who mentions his discovery in the "Bird Book." Their nesting haunt is on the east side of the island, near the granite quarries. Perhaps the Stormy Petrel (*Procellaria pelagica*) also breeds, but a careful search, especially among loose stones at the South End, was unsuccessful in revealing any signs of it.

The number of species of birds which have been recorded for Lundy is a fairly long one, but the number of species to be found there at any one time varies considerably, and is very low. All the land species of birds are very poor in individuals, if we except the Linnets, Stonechats, Pipits, Larks, and Blackbirds.

The Red Admiral (*Pyrameis atlanta*) was the only butterfly which could be said to have been common. I also saw the Small Copper (*Chrysophanus phœas*), the Blue (*Lycæna alexis*), the Brown Argus (*L. astrarche*), the Small Heath (*Cœnonympha pamphilus*), the Cabbage White (*Pieris rapæ*), and the Meadow Brown (*Epinephela ianira*).

Among the Coleoptera, the Rose Chafer (*Cetonia aurata*) was exceedingly plentiful; so, too, was the Tiger Beetle (*Cicindela campestris*). I observed incidentally *Helops striatus*, *Silpha tristis*, *Nebria brevicollis*, *Calathus cisteloides*, *Corymbetes æneus*, and *Steropus madidus*.

The ubiquitous Cockroach (*Periplaneta*) does not appear to have reached Lundy Island, as none of the inhabitants of whom I inquired recollect having ever met with it.

I collected eleven species of Land Isopoda (*vide* the Annals and Mag. Nat. Hist., October, 1909), two of which, viz. *Cylisticus convexus* and *Trichoniscus pygmæus*, have not yet been discovered in North Devon. A more extended study both on the mainland and on the island is necessary before any opinion can be expressed on the relation of the Land Isopods occurring in the two localities.

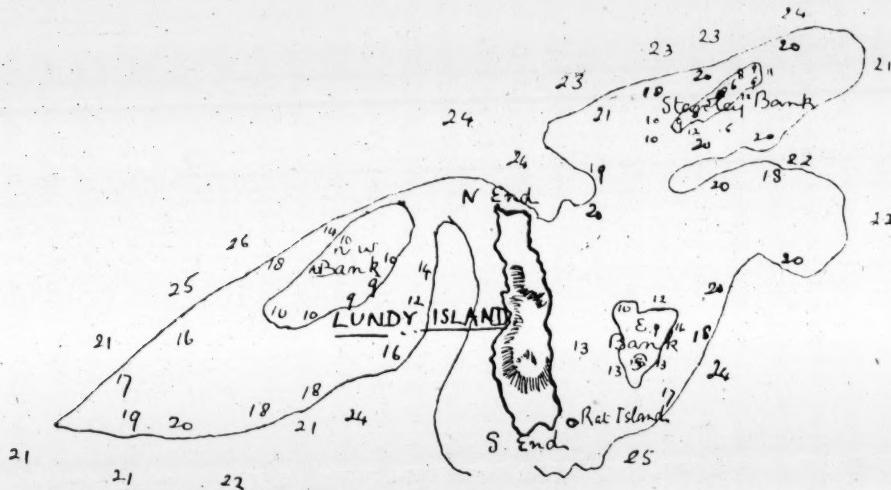
There are a number of fresh-water ponds and water-pits on Lundy, and a qualitative and quantitative study of their microscopic fauna particularly would be very valuable.

No Frogs, Newts, Lizards, or Snakes occur.

The accompanying sketch-map shows the depths of the water around the island, and also the three banks, which possibly represent granite bosses, similar to that of the island itself. According to soundings made during the Admiralty Survey of 1880, the water between the North End and Ilfracombe along a line in the direction of north-east over the Stanley Bank ranges between twenty-one and twenty-four fathoms, Ilfracombe being over twenty-five miles away. The water due east between the island and Morte Point, only eighteen miles distant, reaches a depth of twenty-seven fathoms, while the water between the island and the nearest land, Hartland Point, is the deepest of any, attaining a depth of thirty-two fathoms. The water on the further side of Lundy rapidly increases to thirty-two fathoms and more.

It would appear quite possible that the last connection

between the island and the mainland was not *via* Hartland as has been suggested by Charles Kingsley,* but *via* the Stanley Bank in the direction indicated by the arrow in the map, towards a point between Ilfracombe and Bull Point. But after allowance has been made for silting, the eight or ten fathoms difference in



Sketch Map of Lundy Island, showing soundings around the island and the three banks.

Exact Geographical Position (at the old Lighthouse) : Lat. $51^{\circ} 48' N.$, long. $4^{\circ} 39' 27'' W.$ Greatest height above sea-level, 525 ft. (Beacon Hill). It is about $3\frac{1}{2}$ miles long, but of very irregular breadth.

depth along the Hartland and the Ilfracombe directions is not much; moreover, all the evidence so far obtained from a study of the fauna, especially the coleopterous fauna, indicates that Lundy is an island of considerable antiquity.

* In 'Prose Idylls,' p. 248, under the heading "Morte."

ROUGH NOTES ON THE FISH AND FISHERIES
OF EAST SUFFOLK.

By ARTHUR H. PATTERSON.

(Concluded from p. 421.)

Cod (*Gadus morrhua*).—Plentifully taken all along the Suffolk coast by sea-anglers, and in nets. Col. Leathes tells a gruesome tale about a large Cod captured off Corton by a fisherman, who found inside it “an entire full-grown baby with its chin slightly cut by the knife used by him.” The Colonel gives the name of the fisherman, and I give the story on *his* authority (“Rough Notes”). At a sea-angling match held at Lowestoft in 1905, seventeen Cod were taken which totalled a weight of 170 lb. Mr. Canova tells me that he has known Cods taken at Southwold up to 50 lb. weight, but that they have fallen off greatly in recent years. The largest for 1908–9 was 30 lb.

[**DORSE** (*G. morrhua callarias*).—This much-discussed fish—a rich brown coloured fish—is classed by Dr. Day, our best authority, as a mere variety of *Gadus morrhua*, although claimed as a true species by some other authorities. Wake lists it for Southwold. One is described by Mr. J. H. Gurney in Dr. Lowe’s List (Nor. N. S.) as “caught at Lowestoft, on May 16th, 1851, and called there by the fishermen a ‘lord,’ resembling the variety . . . figured by Yarrell.” [Length, 15½ in.]

HADDOCK (*Gadus æglefinus*).—Once plentiful enough locally, it is now not common by any means. It is on the Southwold list (Wake). Numbers are brought by fishing-smacks into Lowestoft, the larger supplies hailing from Grimsby.

BIB (*G. luscus*).—Variously known as Whiting-Pout and Bastard Whiting. Lowestoft (J. H. G.). Numbers of very small, finger-length Bibs are caught by boys on hooks in the basins. I found a number dead from the Shrimp-boats, August 13th, 1909. When once taken out of the water they must perish,

the eyes becoming inflated with air, so that they cannot afterwards sink themselves. This is reputed to be from terror!

WHITING (*G. merlangus*).—An abundant species, particularly in the colder months, affording excellent sport to sea-anglers. Fishing from a boat, in 1905, some Lowestoft anglers secured three hundred Whitings. “Plentiful off Lowestoft. . . . On the coasts of Norfolk and Suffolk only attains about two-thirds the size of those on the Devonshire coast” (J. H. G.). Mr. Canova informs me that a 7 lb. example was taken off Southwold on a long line laid for Cod. Mr. Dutt, on the authority of Calver, the old Waveney water-bailiff, informs me that “one November morning in 1900, two small Whitings were taken in an Eel-set at the mouth of the dyke connecting Flixton Decoy with the Waveney.”

COAL-FISH (*G. virens*).—On the authority of Wake this species occurs off Southwold: I suspect it cannot be by any means rare, especially in a juvenile state, but I have not myself observed it in Suffolk. Has been captured off Claremont Pier, Lowestoft (Robson). Mr. H. Bunn has “seen bushels brought into Lowestoft.”

POLLACK (*G. pollachius*).—Small examples under a pound weight often taken by sea-anglers. Southwold (Wake).

HAKE (*Merluccius vulgaris*).—Not by any means common off East Anglian coasts [30 in. example recorded, Feb. 1847, at Sheringham]. Southwold (Wake). Mr. H. Bunn states that “the fishermen think a lot of it for eating.”

LING (*Molva vulgaris*).—Given for Southwold in Wake’s list. Mr. Charles Clarke, in a ‘Popular Guide to Aldeburgh,’ states that “if the angler care to prolong his trip [to late autumn], and go to the rocks at the northern end of the town, he will have good sport with the Codling and Cod, now and then getting a Ling and a Conger.”

BURBOLT (*Lota vulgaris*).—Described by Sir Thomas Browne as found “in the rivers of marshland, resembling an Eele and a Cod.” “In Norfolk it is taken in small numbers in the Yare, Bure, and the Waveney, penetrating up to their sources” (Dr. Day *). I have never seen an example, except those preserved in Norwich Museum. Old Breydoners, in describing it to me,

* ‘British Fishes,’ vol. i. p. 311.

have differentiated between it and the Viviparous Blenny, describing the latter, which it slightly resembles, as the "Sea Eel-pout," and the former as the "River Eel-pout." The late Dr. Norman hooked one weighing 2 lb. 2 oz. some years since at the entrance of the Waveney. Southwold (Wake).

THREE-BEARDED ROCKLING (*Motella tricirrata*).—A 14 in. example was sent by the late Sir E. Newton to Mr. T. Southwell on Jan. 19th, 1894, from Lowestoft, which, I believe, is now in the Norwich Museum. One taken to Mr. Howard Bunn, Jan. 1st, 1901; another a "few days after," W. A. Dutt.

FIVE-BEARDED ROCKLING (*M. mustela*).—I know of some taken off Gorleston Pier. A very fine specimen brought to me on Sept. 9th, 1909, by Mr. Cook, of Lowestoft. On Wake's Southwold list appears the "Mackerel Midge, *Motella glauca*." Dr. Day ('British Fishes') assures us that the so-called Mackerel Midge is the young of *M. mustela*.

[LESSER FORKBEARD (*Raniceps raninus*).—Dr. Day makes mention of the following examples of this rather obscure little fish, as taken at Cromer, Sheringham (Norfolk), and again in the Crouch, Essex. And then "Newman, in 'The Zoologist,' stated that he had observed *among the Sprats* brought to Billingsgate Market an occasional specimen of this fish." I have had a fine example brought me that was washed ashore on Yarmouth beach. I am convinced that careful research would place this species on the Suffolk list beyond doubt.]

LARGER SAND-LAUNCE (*Ammodytes lanceolatus*).—A lad hooked one of this species at Lowestoft when angling for Atherines, Aug. 1909. Southwold (Wake). Day gives it for Suffolk.

LESSER SAND-LAUNCE (*A. tobianus*).—As the Sand-Eel occurs on Wake's 'List' for Southwold. I have no doubt is common enough off sandy beaches, as it is off Norfolk.

HALIBUT (*Hippoglossus vulgaris*).—Large examples from the North Sea are sometimes landed at Lowestoft. Wake gives it on his Southwold list; and Mr. Howard Bunn, for Lowestoft, remarks: "Only very small ones."

TURBOT (*Rhombus maximus*).—Very small examples taken in nets by the small trawlers. "A large Turbot, in excellent condition, alive and in full vigour, was brought to me in Lowestoft, having been caught in the deep channel which runs close to the

shore. . . . A respectable fisherman, in whose veracity I place full confidence, told me that he once caught two large Turbots at once, at the head of Lowestoft inner harbour, just below Mutford Lock," J. H. G., quoted by Dr. Lowe (Nor. N. S.).

BRILL (*R. laevis*).—I have seen very small ones occasionally in the trawl catches. Southwold (Wake). "The trawlers catch Brill in Sole Bay" (Canova). Two beautiful varieties in Norwich Museum with brown blotches on a white ground, both of which are from Lowestoft. I met with an albino variety in Feb. 1892.* The very remarkable example figured (*ante*, Plate IV.) was brought to me from Lowestoft on June 29th, 1909.

MEGRIM (*Arnoglossus laterna*).—I am somewhat astonished to find this species marked for Southwold by Dr. Wake, which speaks well for his power of discernment. Some of the longer *Pleuronectidae* have been roughly termed Megrims, but his definition of it as Scald-fish is sufficiently convincing. The tender skin is most easily abraded, giving the fish the appearance of having been scald, hence the trivial nickname. For some years I sought this species off the coast of Norfolk, and in the end obtained two examples, both taken in Shrimp-boats—one in April, 1906, the other in July, 1906.† Each was just over 4 in. in length.

PLAICE (*Pleuronectes platessa*).—Taken off the Suffolk coast in some numbers, but of no very great size, although Mr. Canova wrote me on August 19th, 1909, that "the boats had been getting some fine Plaice catches at Southwold." I saw some with exceedingly bright spots at Aldeburgh on August 30th, 1909.

DAB (*P. limanda*).—Common all along the Suffolk coast. Mr. Canova furnishes me with some good records. His largest seen was $2\frac{1}{4}$ lb. ; largest taken from Southwold Pier, 1 lb. $10\frac{1}{2}$ oz. From the 'Anglers' News' I glean the following :—Taken there by amateur fishermen: 1907–8—examples, 1 lb. $6\frac{1}{2}$ oz. and 1 lb. 4 oz. ; 1908–9—examples, 1 lb. $7\frac{1}{2}$ oz. At Aldeburgh, in Nov. 1908, one was taken weighing 1 lb. 12 oz.

SMEARED DAB (*P. microcephalus*).—Many hundredweight are landed yearly by Lowestoft trawlers, but it does not seem at all common inshore. Two or three shrimpers have assured me

* *Vide* 'Notes of an East Coast Naturalist,' pp. 228–231.

† 'Zoologist,' 1906, pp. 453 and 456.

they have taken it off the Suffolk coast. To the trade it is a "Lemon-Sole." Shrimpers term it the "Cock-Sole."

FLOUNDER (*P. flesus*).—Abundant. Mr. Canova tells me he captured two in two minutes at Southwold weighing respectively 3 lb. 8 oz. and 2 lb. 8 oz. I saw a young fellow on Lowestoft wharf with a small heap of this species on August 30th, which he had taken in a jointed hoop-net. He offered me fine ones at a shilling the dozen. Col. Leathes ('Rough Notes') informs us he once took up a bow-net in Fritton Decoy with a live Flounder in it; it must have come up from the river Waveney, "and passed into the Run Dyke, and . . . jumped through the trap in the lock, and eventually reached the fresh water of the lake." He further informs us he "made a breakfast off Flounder next morning." It is possible that practical jokers are not exclusively a Norfolk product (!). The Flounder at certain seasons is an excellent fish for the table, but locally is not of much commercial value at any time.

SOLE (*Solea vulgaris*).—Taken in some numbers all along the Suffolk coast. I saw catches brought in at Lowestoft, Southwold, and at Aldeburgh. Sir Thomas Browne in noting the Sole goes on to say: "Also the Lingula or small Sole all in very great plentie." In a footnote (p. 45) Mr. T. Southwell remarks: "It is possible that Browne may have Latinised the trade name by which small Soles are known to the market as 'slips' and 'tongues.'" In Norwich Museum are two abnormally coloured examples taken off Lowestoft: one, 14 in. long, of a rich salmon colour, taken Oct. 5th, 1903, and one with a yellowish ground, with blackish blotches, 10 in. long, dated 1872.

SALMON (*Salmo salar*).—Southwold (Wake). "Salmon no comon fish in our riuers," says Browne, "though many are taken in the Ouse, in the Bure . . . in ye waveney or south riuver." An example was netted in Breydon on Aug. 2nd, 1909, weight $14\frac{3}{4}$ lb., which was in all probability making for the Waveney. Paget's remark that "small ones have very rarely been taken in the Mackerel-nets" may apply equally to Lowestoft drifters.

[**AMERICAN BROOK TROUT** (*S. fontinalis*).—"The Fish Acclimatization Society has hatched out and deposited a large number of various species of *Salmonidae* [including this] in the

rivers of Norfolk and Suffolk, but I cannot learn that their efforts have, at present, been attended with much success" (T. S. in Lowe's 'List,' Nor. N. S.).]

SALMON TROUT (*S. trutta*).—Lubbock ('Fauna of Norfolk') says that "a few Sea Trout are still found every autumn in the Yare; but these fish, although common at the harbour's mouth at Gorleston, do not come much into the river. . . . The Waveney [is] also visited occasionally by these fish. Just below St. Olave's bridge, where the water is deep and rapid, has always been a favourite resort." An example, 13½ lb., has been taken off Claremont Pier, Lowestoft (Robson). One at Lowestoft in October, 1907, weight 9 lb.; this had been taken on a hook with Herring-bait. Is taken in draw-nets both at Southwold and Aldeburgh. "One at Wainford Mills, Ditchingham, near Bungay" (Tilney).

[The so-called Bull Trout (*S. eriox*, of Yarrell), although ignored by Dr. Günther as "not attributable to definite species," has as much title to the distinction of a true species as the Twait and Allis Shads. It occurs off the East coast. Is of a ruddier hue.]

SMELT (*Osmerus eperlanus*).—Common; coming regularly up rivers in spring to spawn. Great numbers netted in the lower waters of the Waveney. No fishing specially for this fish at Lowestoft, but is netted at Southwold and Aldeburgh. To the discredit of Aldeburgh fishermen, the Tern colony on Orford Ness has been exterminated owing to an ignorant belief that this bird depletes the Smelt shoals!* The Smelt is an excellent fish for the table, and is in great request; the catches are mostly dispatched to London.

PIKE (*Esox lucius*).—In 'Rough Notes' H. M. L. relates some very remarkable Pike stories from Fritton Lake. The late Dr. Norman is reported to have also seen a monster there fast upon a "ligger." By the help of some keepers, who were asked to assist in its landing, they managed to lose the fish. During the "play" it actually disgorged a 12 lb. Pike which had previously taken the Dace on another "ligger," become hooked, and in its turn had been seized by this much larger Pike. The doctor, who had a good view of the monster, declared it between five

* *Vide* 'Wild Life on a Norfolk Estuary,' pp. 273-278.

and six feet in length! A typical angler's story! Oulton Broad is noted for its Pike.

GARFISH (*Belone vulgaris*).—Sometimes numerously taken in Herring- and Mackerel-nets. Mr. Whistler, of Aldeburgh, informs me of some men fishing from a barge in the Alde taking three Garfish on hooks baited with Lugworms, an unusual circumstance. This fish is not in much repute, although good eating. It is esteemed oily, and prejudice exists against its green bones; these are, however, perfectly innocuous.

GREATER FLYING FISH (*Exocoetus volitans*).—I place this very rare straggler upon this list with a certain amount of reserve, and only on the authority of Wake (Southwold). There is a pectoral fin from a fish of this species now in Norwich Museum, of which Mr. T. E. Gunn makes statement as follows:—"Specimen caught off Yarmouth, May 23rd, 1868. . . . Only known instance on this part of the eastern coast. I submitted it to the late Dr. J. E. Gray, of the British Museum, who identified the species for me." I am not myself disposed to doubt Dr. Wake's statement. It has on several occasions been taken off the English coasts.

CARP (*Cyprinus carpio*).—I have once or twice known examples taken, half-dead, on Breydon, brought down stream by the ebb tides; one of them scaled 7 lb. Occurs in some Suffolk ponds; also in Oulton Broad, but is seldom taken. "Large one netted at Lound Run in 1907, weight 12 lb." (C. W. Long).

GOLD-FISH (*C. auratus*).—Acclimatized in some private ponds.

CRUCIAN CARP (*Carassius vulgaris*).—This species occurs in Fritton Lake, and from what I gather from Mr. R. J. Canova, in more than one Suffolk pond. The species grows to a length of some seven inches, but is exceedingly deep-bodied and thick. Whereas the iris of the Common Carp is golden, that of the Crucian is silvery-white: a $3\frac{1}{2}$ in. example sent me by Mr. Canova in July, 1909, from the neighbourhood of Southwold, exhibited these features, the deep-set eyes being curiously staring. It was large with ova. It is known to hybridize freely with the Common Carp; and Day very truthfully records its hardiness; like the Prussian Carp, it will live "in localities wherein the impurities are sufficient to destroy most other fish."

PRUSSIAN CARP (*C. gibelio*).—It was with considerable trouble

that I was enabled at length to discriminate between this fish and the preceding, having had but one of the Crucian Carp for examination. *C. gibelio* is altogether a more shapely fish than *C. vulgaris*, which is almost quadrangular in shape. The back is less elevated; it has a blunter head, and the tail fin is more deeply forked. I captured several in August, 1908, in a horse-pond at Lound, near the main road, a shallow, stagnant, weed-smothered pit gathered from the drainage of the roads. They have lived happily ever since in a tank, the water in which is seldom changed, and have grown considerably, having nothing else but vermicelli for food. They are somewhat indolent, have become exceedingly tame, taking food from my fingers, and sleep at night on the stones at the bottom of the tank with their eyes open and their mouths shut for considerable periods. I caught an example in the same pit in August, 1909, which weighed five ounces. Mr. C. W. Long, of Lowestoft, showed me a small example in August, 1909, which he had captured in a private pond at Corton.

MIRROR CARP (*C. specularis*).—I was extremely pleased to see for the first time on August 30th, 1909, a small living example of the large-scaled variety of the Carp, the so-called *Spiegel-Karpfen*, which is, I believe, of German "manufacture." Mr. Long, of Lowestoft, in whose aquarium it was, assured me it was taken from a pond in the neighbourhood of Lowestoft.

GUDGEON (*Gobio fluviatilis*).—Found in Fritton Lake.

ROACH (*Leuciscus rutilus*).—Abundant in Suffolk rivers and ponds. Very capricious on the Waveney, seldom biting at an angler's bait. The largest "record" I have for Beccles was reported to me by Mr. Tilney, who informs me "it was taken below the church steps"; weight 2 lb. 14 oz. Another example, 2 lb. 4 oz.

[CHUB (*L. cephalus*).—I picked up an 11 in. dead Chub in the Waveney on April 20th, 1890. Against this I have the statement of Lubbock: "It is entirely unknown in the Bure, Yare, and, I believe, the Waveney; is very large in some Norfolk rivers—the Ouse, the Thet, and the Wissey, near Stoke Ferry." It would be interesting to settle its claim to be an inhabitant of Suffolk waters.]

RUDD (*L. erythrophthalmus*).—Growing to a large size in

Norfolk waters, but does not seem to attain to such dimensions in Suffolk. It is found in Oulton Broad.

DACE (*L. vulgaris*).—Occurs at Oulton Broad, but of small size. Mr. Tilney, of Beccles, tells me that a brother-in-law of his had good sport with this fish when angling with the fly in the vicinity of the Ellingham Mills in the evening.

MINNOW (*L. phoxinus*).—Mr. C. W. Long assures me that Minnows are to be caught in East Suffolk, but was not sure himself of the precise locality.

TENCH (*Tinca vulgaris*).—I saw a nice example captured in the Waveney near the church steps on Aug. 13th, 1909. One had been captured there weighing 3 lb. 2 oz. The late Dr. Norman caught one "near Yarmouth" in the seventies, most probably at Fritton Lake, weighing 5 lb. 14 oz. Christopher Davies ('Rivers and Broads,' p. 21) mentions that "a bow-net set just below the town of Beccles had sixteen brace of fine Tench in it when taken up. The attraction in this case was a bright-coloured bunch of flowers fastened inside."

[**GOLDEN TENCH**.—Has become naturalized in several ponds, and appears to have thriven fairly well. They were first introduced into this country when Frank Buckland was so keen upon pisciculture. He wrote: "These were first brought over by Sir Stephen Lakeman from Pomerania, at the time of the dinner of the Acclimatization Society in St. James's Hall." Writes Dr. Day: "Although this variety renders it a valuable addition in pieces of ornamental water, its colours, on the other hand, cause it to be readily perceived by its enemies, including poachers."]

YELLOW BREAM (*Abramis brama*).—Common. Large examples occasionally taken in the deep waters of the Waveney, at St. Olave's, on the neap tides. Very large and very slimy in Fritton Lake. Found at Oulton. An example caught at Beccles in August, 1907, weight 6 lb.

WHITE BREAM (*A. blicca*).—Mr. T. E. Gunn exhibited a case of these fish at the Fisheries Exhibition, London, in 1883, labelled thus: "Group of four fish caught in Fritton Broad, Sept. 1881, by T. E. Gunn, the largest weighing 3 lb."

[**POMERANIAN BREAM** (*Leuciscus buggenhagii*).—One, undoubtedly a cross between *Abramis* and the Roach, is exhibited at the Wherry Hotel.]

LOACH (*Nemachilus barbatulus*). — Mr. W. A. Dutt writes: "When I was a small boy I used to catch Loaches, with Gudgeons and Miller's Thumbs, in a shallow, gravelly beck connected with the Waveney at Ditchingham, near Bungay."

HERRING (*Clupea harengus*). — Common; in great shoals every autumn off the coast; found also in some numbers all the year round. The immature, termed "whitebait," is abundant in the summer months. Under the name of *Clupea alba*, Wake erroneously records "Whitebait" for Southwold. A record price was realised for Herrings at Lowestoft in December, 1905, the best catch for the season brought in realising 80s. per cran, which is equal to £40 per last.

PILCHARD (*C. pilchardus*). — Occasionally strays to the coasts of East Anglia, and is taken with Herrings. The Pagets refer to an immense number being taken off the coast in 1780 and in 1790; while, "in 1799, so many were taken that one 'tower' [fish-house hand] received upwards of a last [13,200] as his perquisite." Undoubtedly the Lowestoft fishermen that year also met freely with this species. I saw a fine specimen, just out of the sea, at Southwold, in August, 1906. Genuine Sardines are the young of the Pilchard.

SPRAT (*C. sprattus*). — Abundant in November. I saw an example in a shrimper's catch at Lowestoft on August 18th, 1909. On February 18th, 1896, I found some Sprats at Yarmouth (sent up from Suffolk) so advanced in ova that on my pressing the abdomen between my fingers it oozed forth like ripe mustard-seed. I have seen "drove" Sprats infested with a crustacean (*Idotea linearis*). Day had three examples of Sprats sent him from Aldeburgh in 1882, measuring 6½ inches in length.

ALLIS SHAD (*C. alosa*). — Occasionally taken with Herrings and Mackerel. "Two specimens, male and female, caught at Lowestoft in May, 1840, weighed—the male 3½ lb., the female 4½ lb. Both are preserved in Norwich Museum" (J. H. G. Nor. N. S.). Has been taken at Aldeburgh.

TWAIT SHAD (*C. pinta*). — Lowestoft: "a fine specimen caught with hook and line, June, 1867; weight upwards of 2 lb." (T. E. Gunn).

COMMON EEL (*Anguilla vulgaris*). — A common enough species

in all the rivers and estuaries. In Dr. Day's 'Fishes' is a note from Mr. T. Southwell, as follows:—"Mr. Gurney informs me that he used to find the Sharp-nosed Eel at Lowestoft along the coast, sometimes nearly a mile from the harbour's mouth—very healthy but *never large*: 2 lb. would be the maximum weight of these salt-water Eels." A Yellow Eel, 1 ft. long, is stated to have been taken in the Waveney in 1875, and sent to the Kensington Museum (Palmer's 'Perlustration of Great Yarmouth'). There are a few Eel-sets on the Waveney. In the Catalogue of the International Fisheries Exhibition, 1883, is an Eel listed among the exhibits shown by W. Howlett, of Newmarket, as follows:—"Freshwater Eel, taken in Suffolk; weight 30 lb."

CONGER (*Conger vulgaris*).—This exclusively marine species is common off Southwold and Lowestoft. I saw one brought by a "punter" into Aldeburgh in August, 1909. Is taken off Claremont Pier, Lowestoft, by sea-anglers. Example taken in Southwold Bay in January, 1907; weight 53lb.; length 6 ft. 8½ in. The dorsal fin commences much nearer the head in the Conger than in the Common Eel.

BROAD-NOSED PIPE FISH (*Siphonostoma typhle*).—Three sent me from Lowestoft, March 3rd, 1907.

GREATER PIPEFISH (*Syngnathus acus*).—Lowestoft: I saw four young ones in a shrimper's catch on August 13th, 1909.

WORM PIPEFISH (*Nerophis lumbriciformis*).—Southwold (Wake).

HIPPOCAMPUS (*Hippocampus antiquorum*).—Of this species Mr. Dutt assures me that "Mr. F. Stebbings, who used to live in Lowestoft, had a specimen which was said to have been taken locally, but I could not learn its history." A small example is stated to have been taken in a fisherman's net in 1861, at Lowestoft (Palmer's 'Perlustration of Yarmouth').

SUNFISH (*Orthagoriscus mola*).—This species has occasionally been taken entangled in the Herring-nets off the East Coast. Mr. Dutt informs me that he "can remember three being exhibited in fishmongers' shops here" (Lowestoft). Mr. Howard Bunn tells me he has only received two examples for preservation in twenty years. Southwold (Hele).

STURGEON (*Acipenser sturio*). — Recorded for Southwold

(Wake). "On October 7th, 1904," writes Mr. Dutt, "an example between 10 ft. and 11 ft. long, and estimated by Mr. G. Barbor, the fish merchant, to weigh between 36 and 40 stone, was brought in by a steam-trawler." Very rarely travels up the Waveney, but in my recollection two have been taken on Breydon, which joins that river. Suckling records one taken at Beccles in 1733; weight 11 stone 2 lb.; length 7 ft. 8 in. T. E. Gunn recorded one in 1866, an example taken off the Suffolk coast weighing 156 lb.; length 12 ft. 2 in. A 7-stone example taken in a trawler at Aldeburgh.

BLUE SHARK (*Carcharias glaucus*).—Lowe, on the authority of Dr. Hele, of Aldeburgh, records the capture of one at that place: "it was carefully verified by him" (Nor. N. S.).

TOPE (*Galeus vulgaris*).—Occasionally entangled in Herring-nets. I obtained one at Lowestoft in 1890. Have seen it washed up dead near Gorleston, having been, undoubtedly, thrown out from the Herrings.

PORBEAGLE (*Lamna cornubica*).—This is the commonest of the larger North Sea Sharks, and the most frequently taken in the Herring-nets which, in its struggles, it most woefully entangles and destroys. Mr. Dutt informs me that he has seen several landed at Lowestoft, but it seemed so frequent that he did not trouble to "note" the dates of occurrences. He had heard of others also taken.

[**WHITE SHARK** (*Carcharias lamia*).—There is a reference to a *White Shark* in Palmer's 'Perlustration of Great Yarmouth' (vol. iii. p. 400). Stated to have been taken off Kessingland, near Lowestoft. It is stated to have had eight rows of teeth, and weighed a ton. Wake also makes mention of a *White Shark* at Southwold, under the name of *Carcharias vulgaris*. Against these records it would be well to be guided by Day ('British Fishes,' vol. ii. p. 289), who states: "Although the White Shark (*Carcharias lamia*) has been admitted into works on British Fishes, evidence is deficient that it has been taken off our coasts. Grew remarked that it is sometimes found on the Cornish coast; Low, on hearsay that it was found off the Orkneys, but no descriptions appear to be extant from a British specimen. I have therefore omitted it." My own impression is that Palmer's Shark was a *Basking Shark* (*Selache maxima*),

which grows to a huge size ; and that Wake's example was a Blue Shark (*Carcharias glaucus*).]

THRESHER (*Alopecias vulpes*).—This species, which has a tail nearly as long as its body, was first described by Dr. Caius, from a specimen stranded between Lowestoft and Pakefield, in February, 1570. The following list will cover most of the records :— One in Herring-nets off Lowestoft, September 28th, 1879 ; length of body, 6 ft. 6 in. ; tail 6 ft. 4 in. One, Lowestoft, October 20th, 1881, 12 ft. long. Two small examples, Lowestoft, September, 1897. One, Lowestoft, November 7th, 1898 ; length 14 ft. 4 in. Mr. Dutt informs me that "An 11 ft. example, weighing $2\frac{1}{2}$ cwt., was caught by some Southwold fishermen while they were after Herrings not far from the shore ; this was in October, 1906."

ROUGH HOUND (*Scyllium canicula*).—Lesser Spotted Dogfish. Occasionally taken by offshore Suffolk trawlers, Lowestoft ; Lowe (Nor. N. S.), on the authority of J. H. Gurney. Southwold (Wake).

NURSE HOUND (*Scyllium catulus*).—Greater Spotted Dogfish. One caught off Aldeburgh, August, 1909. A fisherman told me he had, a few years ago, taken six and seven score a day when long-lining off that town. Southwold (Wake).

PICKED DOG (*Acanthias vulgaris*).—"Picked" is undoubtedly a corruption of piked, so named from its spines. Comes into the local waters in shoals, following the Herrings. I observed examples of this species in August, 1909, at Southwold, and at Lowestoft. It attains a length of 4 ft. according to Dr. Day ; the largest I have ever recorded was one from Lowestoft in July, 1909 ; length 3 ft. 3 in. ; weight 9 lb.

GREENLAND SHARK (*Læmargus borealis*).—Recorded once in Norfolk, at Sheringham ; once at Lowestoft ; Mr. T. Southwell recorded the latter in 'The Zoologist' as taken at Kessingland, near Lowestoft, on February 28th, 1875 ; it was a male, 12 ft. 6 in. long.

MONK FISH (*Rhina squatina*).—Mr. T. Southwell saw one exhibited at Lowestoft, August 5th, 1874. Has been brought into that port on several occasions (Dutt).

TORPEDO RAY (*Torpedo nobiliana*).—An example of this fish is recorded for Lowestoft, December 1st, 1883, which was taken

in a trawl-net off that port. A freshly captured specimen, "barely dead," was brought me by a Lowestoft fish-vendor on February 9th, 1907. I understand that on February 18th, 1895, Mr. Howard Bunn received an example for preservation in the same town.

SKATE (*Raia batis*).—Common off the Eastern coast.

LONG-NOSED SKATE (*R. oxyrhynchus*).—Said by Wake to have been taken off Southwold, which to me is curious, as I have never yet satisfactorily discovered it for East Norfolk.

BURTON SKATE (*R. marginata*).—I had a small example of this species brought me fresh from Lowestoft on May 9th, 1909. The under part was white, with the *black margin* (as figured in Couch, vol. i. p. 110) that has gained for it the name of Bordered Ray, now, however, satisfactorily described as the young of the present species. The upper surface was drab-coloured and as smooth as glass, with no spiny processes except one against each eye. It was roughly spined under the snout, and had three rows of spiny processes on the tail. I forwarded it to the late Mr. Southwell, who was delighted to receive it.

THORNBACK RAY (*R. clavata*).—Known in the trade, and locally, as "Roker." Great quantities brought from the North Sea to the fish-market by trawlers. Numerous all along the coasts; I saw examples landed by the Southwold and Lowestoft boats. A white variety taken off Lowestoft in October, 1905, 3 lb. in weight. Aldeburgh.

SPOTTED RAY (*R. maculata*).—Locally known as "Homer," or Homlyn Skate. Common all along the Eastern coast. Very small examples in boats at Lowestoft, August, 1909; the fishermen termed them "Maids."

STARRY RAY (*R. radiata*).—Of this formidably spined fish, an example the size of a dinner-plate was brought me from Lowestoft on February 20th, 1907. My first record was an example taken off Norfolk, May 14th, 1897. In each instance, the taxidermist assured me the skinning and preserving of them punished his fingers severely.

STING RAY (*Trygon pastinaca*).—Has on two or three occasions lately turned up on the Suffolk coast. One was caught by a lady fishing from Claremont Pier, Lowestoft, in the June of 1909 [date lost]. It weighed 35 lb. Her basket contained, for

the afternoon's angling, a 1 lb. Sole, a large Dab, and an Eel, besides this monster—a varied catch! On September 3rd, 1909, one of the Aldeburgh trawlers brought in a Sting Ray weighing about 50 lb. It was promptly exhibited on the "Front" to visitors, at the charge of a penny, a board attached to a lamp-post announcing the capture as "The Terror of the Sea, caught at last!" Mr. Whistler, who saw it, assures me that previously an even larger example was captured. "Mr. Gurney mentions one weighing about 10 stone, which he saw taken off Kessingland, Suffolk, September, 1856, which had a double spine" (Nor. N. S.).

WHIP RAY (*Myliobatis aquila*).—Known also as the Eagle Ray. Mr T. E. Gunn records "the skeleton of one found dead on Lowestoft beach, June 19th, 1867," which was in the possession of Mr. Harper, chemist, Norwich.

SEA LAMPREY (*Petromyzon marinus*).—A strong local prejudice exists against this toothsome fish, which strays up the Waveney and other rivers, probably oftener than is known; solitary examples, probably sickly or damaged in some way, have several times, to my knowledge, been fished from the surface of the local waters. Mr. W. S. Everett informs me that, some thirty years ago, a man named Bessey took from his Eel-set on the Waveney, after one night's fishing, no less than 5 cwt. of Lampreys. He despatched them in boxes to London. "Two stuffed specimens at Geldeston, taken in the lock" (Dutt). "Has been caught at Ellingham lock" (Tilney).

RIVER LAMPREY (*P. fluviatilis*).—This species ascends our rivers in irregular but occasionally in great numbers for spawning purposes. An Eel-catcher is recorded to have taken a ton at one haul in his Eel-set, in 1806. When taken in any quantity they are sent away for bait, its toughness on a hook making it a favourite with fishermen. "Taken at Ellingham lock" (Tilney).

[**LANCELET** (*Branchiostoma lanceolatum*).—Dr. Day seems to doubt this "fish's" claim to a true species ("British Fishes"). He says: "This creature is introduced here, due to its being included in other works on British fishes. The structural resemblance between *Amphioxus* [this creature] and the Ascidiants was pointed out by Dr. Goodsir." Dr. Wake gives this

"fish" as occurring in Southwold waters; it is a pity he does not quote authority or date. I myself am inclined to reject it.]

P.S.—A list of species in my Yarmouth Catalogue of Fishes* which might in all probability be discovered off Suffolk if carefully looked for:—

| | | |
|-------------------|---------------------|-------------------|
| Plain Bonito. | 2-Spotted Goby. | Rock Goby. |
| Opah. | Power Cod. | Sail Fluke. |
| Gattorugine. | Eckstrom's Topknot. | Long Rough Dab. |
| Müller's Topknot. | Lemon Sole. | Common Trout. |
| Pole. | Anchovy. | Ocean Pipefish. |
| Hammerhead. | Cuckoo Ray. | Planer's Lamprey. |
| Blackfish. | Ray's Bream. | |

* Cf. 'Zoologist,' 1897, pp. 539–567, and 'Nature in Eastern Norfolk,' pp. 269–310 (1905).

FORMICA SANGUINEA, LTR., AT BEWDLEY, WITH
AN ACCOUNT OF A SLAVE-RAID, AND DESCRIPTI-
TION OF TWO GYNANDROMORPHS, &c.

By HORACE ST. JOHN K. DONISTHORPE, F.Z.S.

ON July 19th last I went to Bewdley Forest for a few days to study the nests of *Formica sanguinea*, a species which is rather common there. Indeed, it flourishes amazingly, having increased considerably since I was there last year. It is now spread all over the district, all along the railway banks, the roads through the Forest, and even in some of the fields. I found the ants very active, winged males and females in most of the nests (some of the former in one of the nests being very small specimens, "Micraners"), and some winged females running about outside. I captured two gynandromorphic specimens—one, half-male, half-worker, on July 20th; and the other, half-male, half-female, on July 21st. I give a description of these curious creatures later on.

On July 20th I was fortunate enough to witness a slave-raid. I found the ants belonging to a nest situated on a high embankment of the railway in a great state of excitement, all running about outside the nest, and very active in the hot sunshine, some winged females being also present outside. I then noticed that a lot of *sanguinea* workers kept arriving, carrying pupæ, whilst others were all hurrying off in the opposite direction. These I started to follow, and found they went along the embankment for a good many yards, and then descended the steep bank, crossed the railway-lines in a slanting direction, and mounted the bank on the opposite side. At the top I found them busily engaged in ravaging a nest of *Formica fusca*. Many workers, laden with pupæ, were streaming off in the direction of their home; I had met specimens carrying pupæ all the time I was tracking the outgoing ants. Others were attacking and killing solitary *fusca* workers. Several *fusca* workers were observed up the grass-stems, &c., holding pupæ, and endeavouring to escape from the slave-raiders. I watched

these proceedings for a considerable time, and accompanied some of the ants with pupæ back to their nest, quite a distance off, though they covered the ground very quickly. Several trains passed, but the ants did not appear to be disturbed, as when I went on to the lines after one had gone through, the ants continued to cross the railway as if nothing had happened. It was unfortunate that I did not witness the start of the expedition, only arriving after the proceedings were in full swing. I believe the only other individuals who have had the good fortune to witness a slave-raid in this country are the great Charles Darwin, F. Smith, and W. Farren-White.

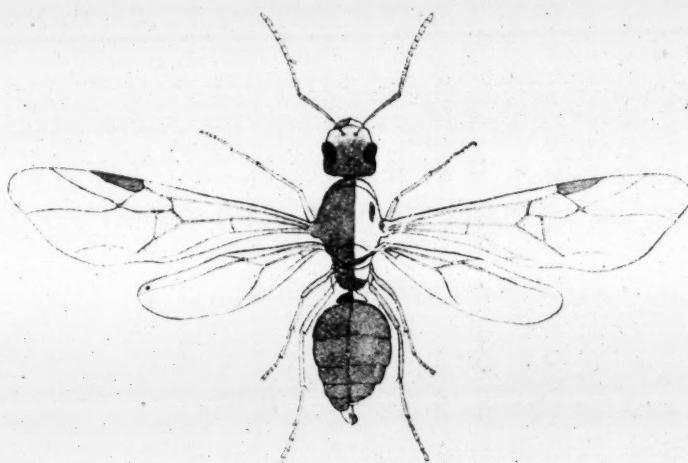
I now give a description of the two gynandromorphs mentioned above. They both belong to Dalla Torre and Friese's Group I. Lateral Gynandromorphs ('Ber naturwiss med Ver. in Innsbruck,' xxiv. 1898, pp. 3-96) :—

Formica sanguinea, Latr. (fig. 1).—Nearly complete lateral gynandromorph; male on right side, worker on left. Right antenna male, left worker. Right mandible, eye, lateral ocellus, and median ocellus male; left mandible, eye, and lateral ocellus worker. The head is black, with the exception of the left mandible, left half of clypeus, a small patch before left eye, and left cheek, which are red. Thorax and petiole, male on right, worker on left, the line of division not being quite straight, however, the black colour on the right side of mesonotum encroaching on the red colour of left side. Petiole divided sharply, black on right, red on left side. Gaster black, the right half with male pilosity and sculpture, left half worker. External male genitalia are present on the right side, the anal sternite being present only on that side. The red and black colour are sharply defined beneath, but the coxae are all black and red, as in the male, and the legs on both sides are somewhat infuscate, the tarsi on the right side being longer. Winged, of course, only on right side; the veins and stigma are pale, and more like those of the female. L. 7 mm.

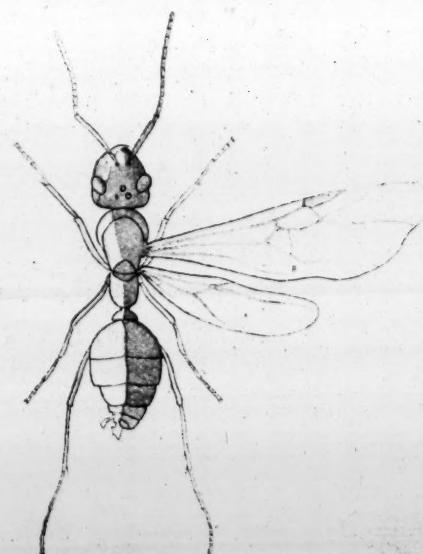
Formica sanguinea, Latr. (fig. 2).—Lateral gynandromorph; male on left side, female on right. Both antennæ female, head somewhat small, but female shape, left eye a little larger than right, ocelli female. Head black, with exception of clypeus and right mandible, which are red; greater part of thorax red and black, evenly divided laterally, only the top right corner of the

epinotum being red. A bit of the scutellum and post-scutellum on the left side, where the hind wing is joined, red. Petiole sharply divided, red on right side, black on left. Gaster black, the right side with female pilosity and sculpture, left side with that of male. Colour sharply defined underneath. Legs and coxae

(2)



(1)



Hereward Dolman.

female on right side, male on left. External male genitalia are present on left-hand side. Fully winged on both sides, the stigma and veins being darker, as in the male. L. 9 mm.

Only two other specimens appear to have been found in Britain. These are a specimen of *Myrmica lærvinodis* (B. Cooke, Nat. Yorks. viii. 1882, p. 30; F. Smith, Ent. Ann. 1874, p. 147, and Trans. Ent. Soc. Lond. 1874, Proceed. pt. iv.), and a specimen of *Stenamma westwoodi* (R. C. H. Perkins, E.M.M. 1891, p. 123). Prof. Wheeler has written a very complete paper on Gynandromorphous Ants (Bull. American Museum, Nat. Hist., xix. 1903, pp. 653-683).

The following Myrmecophiles were taken during my stay at Bewdley :—*Dinarda dentata*, not uncommon in some of the *sanguinea* nests, as well as many of its larvæ. A specimen of *Notothecta flavipes* running among the *sanguineas*, having no doubt flown from one of the *rufa* nests near, and another on the wing. The mite *Lælaps cunifer*, which occurs with so many species of ants, was abundant in the *sanguinea* nests. The interesting little fly, *Phora formicarum*, was captured hovering over and striking at ants in nests of *F. sanguinea*, *Lasius niger*, and *L. flavus*. It hovers in a very steady and deliberate manner over an ant, getting gradually nearer and nearer. It was very amusing to observe an ant, when it had become aware of the presence of the fly, run as hard as it could for shelter, pursued by the fly. I found the fly would hover and strike at the ants even when the latter were on my hands. A single *Coccinella distincta* was found in a *rufa* nest. A female of the fine Bracon, *Euphorus bistigmaticus*, recently described by Mr. Morley (E.M.M. 1909, p. 212), was captured, hovering over a nest of *F. rufa*.

Before bringing these notes to a close, mention must be made of a nest of *Formica fusca* var. *rubescens*, Forel, Ann. Soc. Ent. Belgique, T. 48, p. 423 (1904). I discovered this nest last year at Bewdley. It was situated under a very large, heavy stone, and partly in a mound it had raised beside the stone. At the time I took it to be *Formica rufibarbis*. I had expected to find *Dinarda pygmæa* and *Atemeles paradoxus* with it, but this will account for their absence! No female could be found last year, and this year, though many winged males were present, not a single female could be found. This looks as if the males were the parthenogenetic offspring of the workers, from worker eggs. This is the first record of this variety of *F. fusca* in Britain, though Prof. Forel tells me it is common in Switzerland.

NOTES AND QUERIES.

AVES.

Wryneck in Yorkshire.—On June 8th, whilst walking through the park at Studley Royal, near Ripon, I heard the Wryneck (*Iynx torquilla*) in full song. It is the first time that I have noticed this bird in Yorkshire during twenty years' residence in the county.—W. GYNGELL (Scarborough).

Notes on the Nesting of the Sparrow-Hawk (Accipiter nisus).—

May 23rd.—Nest built in a holly-tree, eleven feet from the ground, containing five eggs, this nest, as is very frequent, being near a ride.

June 15th.—7 p.m. Two young hatched.

17th.—7 p.m. Four young hatched. One addled egg. No trace of any remains of food in the nest. Probably the young are being fed with small portions only of the prey brought to the nest.

19th.—7 p.m. No remains of any food.

21st.—7 p.m. Feathers of a small Warbler in nest; probably Willow-Warbler. The young are evidently now tearing to pieces the "kills" brought to nest.

30th.—7 p.m. Feathers only in nest, apparently of young birds, and difficult to name with any certainty.

July 8th.—Remains of one Pheasant poult and one Jay.

9th.—Another Pheasant poult.

11th.—Remains of two Pheasant poults, one Blackbird, two Thrushes. As Pheasants are not very common near at hand, most likely regular visits are being paid to my neighbour's coops.

12th.—Remains of Jay, Redstart, and Warbler. Two of the young Hawks sitting on branches outside of nest.

14th.—Remains of Redstart. Four nestlings all in the nest.

16th.—Remains of two Pheasant poults. No young seen.

17th.—Remains of young Pheasant, Woodcock, Chaffinch, and Thrush, the latter having been eaten on the ground some few yards distant from tree containing nest. One young Hawk on the nest, another close by, and others not seen, the trees around being so thick it is difficult to locate them unless they chatter.

18th.—11 a.m. One young feeding on a Blackbird within the nest. One or more of the other nestlings heard near at hand. Re-

mains of hen Bullfinch, Robin, Warbler, and one other bird on the ground in the vicinity of the nesting-tree.

19th.—7 p.m. Remains of Blackbird and Thrush on the ground.

20th.—One only of the nestlings heard. Remains of a chicken (size of Partridge), Thrush, and Warbler. The remains are found within a area of fifty yards of the nest.

No trace of any additional "kills" after this date, and the young were neither seen nor heard again in this particular part of the forest. For a period of not less than twenty-seven days the young were in the nest, and eight days more before finally leaving their birthplace.

In addition to the seven Pheasants, one Chicken, one Woodcock, two Jays, five Thrushes, three Blackbirds, one Bullfinch, one Robin, two Redstarts, one Chaffinch, and several Warblers already mentioned, there would be a number of other "kills" of which no trace would be found. In the smaller birds under the size of a Thrush, the whole, as a rule, appears to be devoured ; with Thrushes and such like birds the legs are not usually swallowed, and with the larger birds the legs, head, and more or less of the skeleton are left. Most of the feathers are removed from the "kills" before being brought to the nest.—
J. STEELE ELLIOTT (Dowles Manor, Salop).

Rough-legged Buzzard in Surrey.—A Rough-legged Buzzard (*Buteo lagopus*) was shot in Wonersh Park, near Guildford, on Nov. 24th, 1909. The bird is a very nice adult male, but not very old. It measures 22½ in. long, and 53 in. tip to tip of wings. It is being preserved by Pratt & Sons, the well-known naturalists of Brighton.—
G. HERBERT EASTWOOD (Whipley Manor, Bramley, Surrey).

Little Bittern in Oxfordshire.—A Little Bittern (*Ardetta minuta*), with one wing shattered close up to the body, was picked up under the telegraph-wires at Somerton (in the Cherwell Valley), Oxon, on June 27th, 1909. I examined it three days later while it was still in the flesh. The bill was then brown and yellow ; legs greenish yellow. It appears to be adult, and was afterwards carefully sexed and found to be a female. The ovary was to have been sent to me, but bad weather intervened, and it went bad before I could see it. It was said to contain rudimentary eggs of the size of sweet-pea seed, but whether this points to the bird having already deposited its eggs or not I cannot now say. I should have preserved the ovary in spirit, and submitted it to an authority had I been able to do so ; but there is hardly any doubt that the bird would have laid by the end of June if it was going to lay at all, and had a mate. A set of four eggs in my collection, taken by a friend of mine in Spain, was found on

May 5th. There are plenty of suitable breeding places (weed- and rush-grown osier and withy beds) in the Cherwell Valley, in the neighbourhood of Somerton.—O. V. APLIN (Bloxham, Oxon).

Bittern in Warwickshire.—I do not think I have recorded that a very thin Bittern (*Botaurus stellaris*) was brought from Fenny Compton to a birdstuffer during rather severe weather, on Jan. 28th, 1909.—O. V. APLIN.

Brown-throated Quail in Oxfordshire.—A Quail was picked up under the telegraph-wires at Adderbury on May 6th, 1909, and brought to me while in the flesh. It had been heard calling in an adjoining clover-field since the 3rd of the month. In this example the chin and throat are dark brown, and the only sign of the black anchor-shaped mark found in *C. coturnix* is a small black spot at the bottom of the throat. It would thus appear to agree with the description of the hybrid birds between *C. coturnix* and the form known as *C. capensis* (found in South Africa and the islands surrounding the coast) described by Mr. Ogilvie Grant in his 'Handbook to the Game Birds,' vol. i. p. 181. It is a male, weighed $3\frac{1}{2}$ oz., and seemed fairly fat. I have had it preserved.—O. V. APLIN.

Some Migration Notes from Yarmouth.—Up to time of writing the annual autumnal migration has not provided local naturalists with many surprises. A Water-Rail was found dead in the heart of the town on Sept. 25th, having struck an overhead wire when flighting, and two Land-Rails found themselves in trouble from a similar cause on the 13th and 16th respectively; in this case, however, neither were injured, and I saw them alive in two public-houses, where they were being exhibited as "foreynors," to the no small bewilderment of brains none too clear and unclouded. Their flight must have been less forceful, or they had undoubtedly shared the same fate as the Water-Rail. Redstarts swarmed the St. George's Park on Sept. 16th, and numbers were seen, with Wheatears, by a gentleman cycling on the road between Lowestoft and Yarmouth. The first Hooded Crow was shown me dead on Oct. 4th. This species has been scarcer locally, so far, than for a number of years past; I am inclined to think it does not now visit us so commonly as at one time. Larks, Linnets, Chaffinches, and other small birds were arriving all day, and late into the afternoon of Oct. 10th, after which date they came in only spasmodically, and, so far as I can gather, in no great numbers. Only on odd days have the various *Corvines* been observed trooping in. My nephew, who was stationed on board the 'Leman and Ower' Lightship in October, tells me that, compared

with last October, this has been a very poor migration, from a lightsman's standpoint. He lamented a paucity of "fog-horny" nights, *i.e.* the nights were most frequently clear, and the birds were not driven to such straits on migration as happens on damp, drizzly nights. There were Larks, Tree-Sparrows, and other small birds noticed passing, but the only birds "of any account" were a Kingfisher and a Moorhen. The latter struck a lamp on about the 8th, killing itself, and, my relative remarked, "was within an ace of bashing the lampman's face, the whisk of its wings being felt upon his face." This bird was immediately pounced upon, and afterwards "baked with a bit of salt pork." The fact of a Kingfisher coming aboard the vessel, which is eighteen miles from shore, is interesting. It has been remarked, I believe, that this bird had never, so far, been recorded from a light-vessel; of course naturalists can only conjecture it a possible migrant. It arrived the same night as the Moorhen. I afterwards visited the particular lightsman's house, where its carcase was to be seen. It had been drawn and filled in with salt and a bit of stuffing, and was of course an exceeding sorry example of amateur taxidermy. A goodly muster of Swans was reported to me by a Mr. Youngs, an amateur puntsman, as seen by him on Breydon. They were, he states, divided into three or four flocks, in all numbering upwards of a hundred individuals. This was on Nov. 11th. Youngs tells me he heard some of them "whooping"; while Mr. Sharman, an old Breydon puntsman, informed me one flock was almost certainly composed of Bewick's. One or two large bunches of Snow-Buntings have been seen, and two Lapland Buntings are reported as "obtained."—ARTHUR H. PATTERSON (Ibis House, Great Yarmouth).

Correction.—T. LENNARD (p. 233) should be T. SHEPPARD (Municipal Museum, Hull).

NOTICES OF NEW BOOKS.

The Place of Animals in Human Thought. By the Countess EVELYN MARTINENGO CESARESCO. T. Fisher Unwin.

THIS is a stimulating and learned book on a subject which engaged the minds of thinking men long before zoology was studied as a science; it approaches the subject on a mystical and psychological plane, and seeks to unravel the hidden qualities which unite man to the other animals rather than the

structural characters which differentiate him. In this respect there is some clue to the cryptic remark made by Cardinal Newman, and quoted by the authoress: "That we know less of animals than of angels." Shall we ever reach the position of ceasing to describe mankind alone as constituting "our fellow-creatures"?

In human history, full of "wars and rumours of war," it seems strange to find that there have always been sages and thinkers who have advocated the view that we should use animals as our helpers, but should refrain from taking life. It is quite a novelty to be referred on this point to Plutarch, and the Countess has done good service in extracting from "the formidable depths of the *Moralia*" sufficient to prove "that Plutarch traversed the whole field of speculation on animal intelligence." From the Adi Granth, or Sacred Book of the Sikhs, we find a quotation from Baba Nanak that reminds us of a subsequent well-known couplet in the 'Ancient Mariner':—

"He who towards every living thing is kind,
Ah! he, indeed, shall true religion find!"

In all the great faiths of humanity we find injunctions to the same effect, though often little followed by the faithful, and on this point the student may well agree with a quotation of the authoress: "He who knows but one religion knows none." Through these ancient fields and the mazes of folk-lore the Countess leads us with no uncertain step in a volume which is suggestive to the last degree. The subject, however, is after all somewhat of an academic one; we heartily grant the premise that all life is sacred, even when starting for a happy day's angling; as zoologists we gloat over the skins of slain birds and mammals which give us a knowledge of still more species, and enable us to further understand the intricacies of animal distribution. But we can at least rise to higher things in refusing to believe that other animals are automata, and we can study animal psychology apart from a too strongly pronounced anthropomorphic standpoint.

There is little to criticise. The "wolf of Agobio," on p. 257, is referred to on p. 258 as the "wolf of Gubbio"; while the story of the Saint of Assisi and the Cicada requires revision. The injunction of Francis, "Sing, my sister Cicada," and the

remark that, after receiving the permission, "she sang her song," is not only, as regards a sexual acquirement, against the teaching of entomology, but also contrary to the true though ungallant lines of the Rhodian bard who wrote :—

" Happy the Cicada lives,
Since they all have voiceless wives."

The Home-life of a Golden Eagle. Photographed and Described
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MR. MACPHERSON has had an unique experience—in fact, the ornithological chance of a lifetime, and he has made the most of it. He has not only watched the home-life, but seen the young Eagle from the egg to its abandonment of the nest and its disappearance into the grand but inhospitable gorges of the Grampian range. In what to a Southron seems dreary exposure combined with laborious climbings the author has kept long vigils near the eyrie, and done bird-watching *par excellence* with the trusty camera, while thirty-two mounted plates show the principal incidents of the eleven weeks passed by the eaglet in the eyrie. There were two young, but one mysteriously disappeared, so that even this rare bird requires protection rather than molestation, for destructive as are its habits it is not free from danger.

In this booklet Mr. Macpherson tells his story with considerable skill, for it never lacks the highland environment ; it details observations which are original, and it records work only to be accomplished by much hardihood. The plates fully illustrate the story of the eyrie with the hardy uprearing of the eaglet as in the old Scottish way. We have only one fault to find, and that more with the publisher than the author. Surely this booklet deserved better binding ; an essentially paper cover for so good a piece of work throws an obligation on all who possess it and naturally wish to place it on the library shelf.

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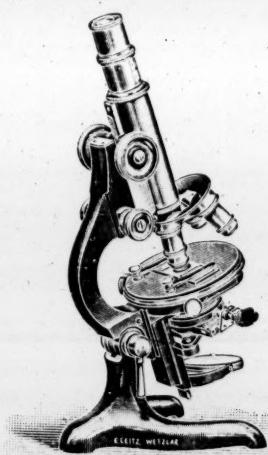
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